

CLAIMS

- 1. An automatic culture apparatus for culturing cells or a tissue with a biological origin in a culture container which is placed in a box-type culture apparatus having a closed and aseptic inner space, characterized in that a plural number of divided spaces, a gas incubator provided with a practicable window, a unit for supplying a liquid culture medium and a unit for discharging the same, a unit for monitoring the culture conditions, and a transferring unit for continuously or intermittently transferring the culture container toward these units are provided in the box of the culture apparatus, and at least one of the above-described units is equipped with an instruction controlling unit by which the culture apparatus is controlled under an instruction in the form of an electrical signal depending on a data signal generated by the culture condition-monitoring unit so as to prevent cross-contamination.**
- 2. The automatic culture apparatus according to Claim 1, wherein the apparatus has a setting unit for introducing a sterile gas into all portions or partial portions in the box of the culture apparatus.**
- 3. The automatic culture apparatus according to Claim 2, wherein the sterile gas is an ozone gas.**
- 4. The automatic culture apparatus according to any of Claims 1 to 3, wherein the apparatus has an environmental condition setting unit for allowing all portions or partial portions in the box of the culture apparatus to have a positive pressure higher than that of the outer space.**
- 5. The automatic culture apparatus according to any of Claims 1 to 4, wherein the box of the culture apparatus is divided into a plural number of spaces and the spaces are mutually closable.**
- 6. The automatic culture apparatus according to Claim 5, wherein the box of the culture apparatus is divided into a plural number of spaces by a separator and this separator is equipped with a practicable separator door for transferring the culture container.**

- 7. The automatic culture apparatus according to any of Claims 1 to 6, wherein a unit for washing cells or a tissue is provided and transferring of the culture container to this washing unit and movement thereof are controlled by the instruction controlling unit.**
- 8. The automatic culture apparatus according to any of Claims 1 to 7, wherein a unit for adding a chemical is provided and transferring of the culture container to this chemical adding unit and movement thereof are controlled by the instruction controlling unit.**
- 9. The automatic culture apparatus according to any of Claims 1 to 8, wherein a culture substance in the culture container is transferred into and out of the culture container while maintaining a blocking property against the outside space of the culture container.**
- 10. The automatic culture apparatus according to any of Claims 1 to 9, wherein a unit for peeling or recovering a culture substance from the culture container is provided in the box of the culture apparatus and transferring of the culture container to this apparatus is made possible by the transferring unit.**
- 11. The automatic culture apparatus according to Claim 10, wherein the unit for peeling or recovering is a vibration unit or a rotation unit.**
- 12. The automatic culture apparatus according to any of Claims 1 to 11, wherein a press unit for changing the culture environmental conditions is provided in the box of the culture apparatus and transferring of the culture container to this apparatus is made possible by the transferring unit.**
- 13. The automatic culture apparatus according to Claim 12, wherein the press unit is operated by removal and attachment of a magnet or by mechanical pressing.**
- 14. The automatic culture apparatus according to any of Claims 1 to 13, wherein the container filled with a liquid culture medium, washing liquid or chemical is not re-used.**
- 15. The automatic culture apparatus according to any of Claims 1 to 14, wherein supplying of a liquid culture medium, washing liquid or chemical to the culture container is conductive via a sterilized syringe.**
- 16. The automatic culture apparatus according to any of Claims 1 to 14, wherein**

supplying of a liquid culture medium, washing liquid or chemical to the culture container is conductive via a sterilized tube connected to the container for a liquid culture medium, washing liquid or chemical.

17. An automatic culture apparatus equipped with a noninvasive measurement apparatus in which the amount and/or quality of cells or a tissue with a biological origin is analyzed and measured in static adhesion culture using a culture container for culturing cells or a tissue with a biological origin.

18. The automatic culture apparatus equipped with a noninvasive measurement apparatus according to Claim 17, wherein the culture container is equipped with electrodes for measuring electric capacity, and a culture substance is placed between two or more electrodes for measuring electric capacity and the electric capacity of the culture substance is measured.

19. The automatic culture apparatus equipped with a noninvasive measurement apparatus according to Claim 17, wherein a displacement meter provided with an XY scanning unit is placed at an upper position of the culture container, and cells or a tissue with a biological origin is analyzed and measured based on measurement of the thickness of a cell by the displacement meter.

20. The automatic culture apparatus equipped with a noninvasive measurement apparatus according to Claim 17, wherein a fluorometry unit provided with an XY scanning unit is placed at an upper position of the culture container, and cells or a tissue with a biological origin is analyzed and measured based on fluorometry.